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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HISASHI OHTANI and TORU MITSUKI

Appeal 2009-0328
Application 09/379,702
Technology Center 2800

Decided¹: February 5, 2009

Before KENNETH W. HAIRSTON, MAHSHID D. SAADAT, and KARL D. EASTHOM, *Administrative Patent Judges*.

HAIRSTON, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. §§ 6(b) and 134 from the final rejection of claims 45 to 64.

The disclosed invention relates to a semiconductor device that comprises a first insulating film over a crystalline semiconductor island, a second insulating film over the first insulating film, and a gate electrode over the insulating films (Figs. 1E and 2D; Spec. 15 to 17). The first insulating film has a side aligned with a side of the crystalline semiconductor island,

¹ The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

and the second insulating film extends beyond an edge of the first insulating film (Fig. 2D).

Claim 45 is representative of the claimed invention, and it reads as follows:

45. A semiconductor device comprising:

a crystalline semiconductor island comprising silicon over a substrate, the crystalline semiconductor island comprising a source region, a drain region, and a channel formation region provided between the source and the drain region; and

a gate insulating film comprising a first insulating film over the crystalline semiconductor island and a second insulating film over the first insulating film; and

a gate electrode over the gate insulating film,

wherein the first insulating film has a side aligned with a side of the crystalline semiconductor island, and

wherein the second insulating film extends beyond an edge of the first insulating film.

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Yamazaki US 5,315,132 May 24, 1994

Matsumoto US 5,396,084 Mar. 7, 1995

The Examiner rejected claims 45 to 64 under 35 U.S.C. § 103(a) based upon the teachings of Yamazaki and Matsumoto.

The Examiner acknowledges (Ans. 4) that “Yamazaki does not disclose a gate insulating film comprising a second insulating film extending beyond an edge of the first insulating film,” and cites Matsumoto for such a teaching. Appellants argue *inter alia* (Substitute Br. 4) that the applied

reference to Matsumoto uses two insulating films that “cover the entire surface of the chip.”

Yamazaki describes the use of a single gate insulating film 3 in a crystalline semiconductor island of a semiconductor device (Fig. 3; Abstract; col. 6, ll. 8 to 34). Matsumoto describes the use of two gate insulating films 14 and 19 in a thin film semiconductor device 2 (Fig. 1; col. 3, ll. 15 to 57). The two insulating films in Matsumoto are formed on the “entire” surface of the semiconductor device (col. 3, ll. 24 to 44).

Inasmuch as the second insulating film 19 extends over the “entire” surface of the first insulating film 14 in Matsumoto, and is presumably the same size as the first insulating film 14, the combined teachings of the references lack a second insulating film that “extends beyond an edge of the first insulating film” as set forth in all of the claims on appeal. Thus, the obviousness rejection of claims 45 to 64 is reversed because the applied references neither teach nor would have suggested to one of ordinary skill in the art the claimed subject matter, and because the Examiner’s articulated reasoning for the rejection does not support a legal conclusion of obviousness. *KSR Int’l v. Teleflex, Inc.*, 127 S. Ct. 1727, 1741 (2007).

The decision of the Examiner is reversed.

REVERSED

gvw

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